

APPENDIX U-8

EXECUTIVE SUMMARY OF THE INVESTIGATION OF SEVEN POWER AIR PURIFYING RESPIRATORY (PAPR) HELMET BATTERY ASSEMBLIES AND PIECES



November 17, 2011

MEMORANDUM FOR NORMAN G. PAGE
Accident Investigation Team Leader

FROM: JOHN P. FAINI 
Chief, Approval and Certification Center

SUBJECT: Executive Summary of the Investigation of Seven Power Air Purifying Respiratory (PAPR) Helmet Battery Assemblies and Pieces Recovered from Performance Coal Company's Upper Big Branch – South Mine

The Approval and Certification Center (A&CC), as requested by Upper Big Branch Mine Accident Investigation Team Leader, Norman Page, conducted a laboratory investigation of seven power air purifying respiratory (PAPR) helmet battery assemblies and pieces recovered from a fatal mine explosion at the Upper Big Branch Mine-South on April 5, 2010.

The components examined were:

1. Exhibit No. B11-B, Battery for longwall face helmet 3M (Minnesota Mining and Manufacturing) NiCad, recovered from the longwall face.
2. Exhibit No. PE-0205, Airstream helmet battery, recovered from Survey Spad # 22692 (SS# 22692).
3. Exhibit No. PE-0208, Airstream helmet battery, recovered from SS# 22701.
4. Exhibit No. PE-0270, Airstream helmet battery, recovered from longwall Shield 121.
5. Exhibit No. PE-0151, Airstream helmet battery case portion, recovered from between SS# 22738 and SS# 22759.
6. Exhibit No. PE-0152, Airstream helmet duct and cable, recovered from SS# 22759.
7. Exhibit No. PE-0481, Airstream helmet duct and cable, recovered from Longwall Shield 109.

The locations of the evidence were copied from the evidence ID tags.

The examination of these exhibits showed that:

- None of the electrical components or assembly materials of the exhibits showed signs of arcing, sparking or electrical heating.
- No ignition of methane gas occurred during a spark ignition test with the highest short circuit current and highest open circuit voltage that was measured from any of the exhibit batteries.
- All electrical components, assembly materials and assemblies were in accordance with approval documentation on file with MSHA under approval number 2G-3143-0 and its subsequent extension (-1).

